

**Strategic Work Zone Analysis Tool
Steering Committee Meeting
October 25, 2000
Chicago, Illinois**

The October 26, 2000 meeting of the Strategic Work Zone Analysis Tool (SWAT) Steering Committee provided a peer-to-peer exchange for Federal, State, and transportation industry professionals to discuss work zone operations and safety issues. Meeting in the City of Chicago's Office of Transportation building, the group of approximately 20 Steering Committee members discussed:

- Performance Measures outlined by the Federal Highway Administration's (FHWA) Work Zone Senior Working Group.
- Work zone, fatalities, delays and statistics
- QuickZone Software
- Cost Alternative Analysis Tools

The SWAT Steering Committee participant list is **Attachment A**.

Raj Ghaman, Federal Highway Administration, Team Leader opened the daylong meeting with introductions and reviewed comments he received from the committee regarding QuickZone. He encouraged committee members to provide further comments during the interim. Phil Ditzler, Federal Highway Administration, Team Leader said FHWA has set up a Work Zone Senior Working Group (work zone team) at the policy level to provide guidance. Ghaman reviewed a work zone performance measures priority list provided by the senior policy group. According to Ghaman, the senior group also provided various standard recommendations for work zones. There was discussion among the committee on whether the performance measures were reasonable achievements.

Performance Measure 1: Data for Work Zone Fatalities

The group did not think this should be the first priority. However, Dr. Pitu Mirchandani, University Arizona Professor said the Arizona DOT conducted a study and has data on work zone collisions. He said he would make sure the Arizona DOT report is provided to committee members. Dr. Mirchandani said the Arizona report does not say work zone per se but implies work zones. Georgia had some of the problems in terms of classification as well. There is no distinction between motorists or workers in the work zone statistics. Seve Cerna, Louisiana DOT said, "we don't have a good handle on the fatalities because officers don't check the right box on the report."

Would the statistics be meaningful if they provided more information?

Patrick Fleming, Wisconsin DOT said "maybe not" because work zone crashes are strange accidents usually where someone has done something erratic. Pointing out it would takes a lot of research to find out if it was related to geometric are queuing.

Meredith McDiarmid, North Carolina DOT said it does require research to find out what caused the accident. She said they are trying to educate law enforcement officers to report the data correctly.

Action: Group decided that fatalities in work zones should not be at top of list and the data set should be lower.

Action: The group agreed to do research on the exposure rate index. Ghaman agreed do the legwork and then get volunteers.

Performance Measure 2: Accidents

Same conclusions by the group as above

Performance Measure 3: Number of Work Zones

Miguel Gavino, Washington DOT said he did not see this being very useful right now. Adding that he could appreciate the number of miles per qualified highway. Dr. Mark Wolfgram, Wisconsin DOT said that it's useful at a descriptive level. Maggie O'Mara, Caltrans said the description needs tweaking to distinguish the total mile in work zone to how many work zones there are. William Lozier, Ohio DOT said that this is the argument between asphalt and concrete. The strategic issue is reducing times spent in work zone.

Performance Measure 4: Work Zone Duration

Suggestions: Add per mile to work zone duration.

Performance Measure 5: Work Zone Related Delays:

Ditzler emphasized the need for the numbers to be something that can be defended to the public." Ghaman said he does not believe there can be a creditable national standard because what happens in Louisiana is different from what happens in North Carolina. We need to provide guidance to States so they can build their own measures, said Ghaman.

In California there is a 30-minute threshold for delay, said O'Mara. It is an estimate, she said adding that you know what your capacity is and when you close a lane you estimate the total time it will take to get through the work zone. She said California's 30-minute delay policy is the result of a government officials getting stuck in an 80-minute traffic delay.

Fleming said in Wisconsin they looked at tolerable delays. He said they use the 30-minute threshold but it is not policy. Lozier said Ohio came up with a queue length policy of one-and-a-half miles.

ACTION: Ghaman suggested that a survey be done to see how long people would tolerate delays. It will break down between urban and rural on tolerance. A participant pointed out that there are different tolerances of delays regarding how urban you are.

Number 6: Impact on Adjacent Property

Comments:

- This area is too broad we need to separate businesses because there is lot of concern about loss revenue. We need to make this a 6(a) and 6(b) issue.
- Impact –has anyone looked at the way state roads were design pre interstate? There are alternative byways in old cities and there is a grid pattern.
- Traffic Calming is a big thing now. The trend seems to be diverse, new cities plan no traffic in city center. Interstates were intended for through traffic not local traffic.
- McDiarmid said in North Carolina they used public relations campaigns to get acceptance and put in turn routes and signals to handle extra traffic during closures. She said this was a boost for the agencies image. Also we tell the city about added permanent improvements and they end up getting more, said McDiarmid.
- The whole question of recurring or construction related congestion impact on business is important because no one has looked at that. That's something that we need to quantify.

Performance Measure Number 7: Recurring Benefits- lifecycle costs

Performance Measure Number 8: Public perception-

The group said this issue was the same as the discussion of performance measure 6. Karl Wunderlich, Mitretek systems said he sees this as an annual survey to see if there is an impact. Dr. Wolfram added that a lot of these are the type of things where there is a policy with a goal. Adding that a national survey would provide information needed to know if it is working. Another point was that if its not working, then some thought needs to be given to performance measures that indicate what needs improvement. Gavino suggested asking the customer about qualitative measures in a survey instead of just technical measures.

ACTION: Organize a focus group to get public input and consensus on a national survey on an annual basis. Perception of counter measures for delays is suggested. Group decided to do a survey and focus group.

- Perception of delay could be addressed in survey.
- Get feedback from MPO's

Performance Measure 9: Environmental Impact

- Not a major issue

ACTION: SWAT group preliminary performance measure priorities

- Safety
- Work Zone Delays
- Public Perception of work zone operation and benefit
- Life-cycle cost

Performance Measure Conclusion

Action: Ghaman said the group will prepare a response for the Senior Work Zone Group headed by Jack Kay. “We will get back to them from a technical perspective.” He asked the SWAT Steering Committee members to email him their preference in ranking the performance measures. Ghaman reminded the participants that their group would be a sounding board for senior management. The Performance Measure handout is included as **Attachment B**.

Work Zone Effects on Travelers

Dr. Mirchandani made a presentation on the effects on travelers through work zones: The spreadsheet he reviewed is included as **Attachment C**.

QuickZone Update

Dr. Karl Wunderlich and James Larkin with Mitretek Systems gave an updated overview of the QuickZone software latest version. QuickZone is a delay estimation tool for work zones. The development of the product started April 17 and Mitretek is working to deliver the product by March 2001.

Results of a survey Mitretek sent out to get input on the software development were discussed. The presentation on QuickZone is included as **Attachment D**.

Ghaman provided the URL address of www.tfhrc.gov/its/quickzon.htm. He said FHWA will continue to support QuickZone and fix the bugs. It will be one of the tools in the SWAT suite of tools.

Questions/Discussion

- QZ issues: importing data from other info
- Cost calculations (out of scope) are developing a cost module separately
- Delivery date March 2001

Cost/Alternative Analysis Tool Concept

Roger Hoopengardner, SAIC made this presentation. It is included as **Attachment E**. He said the objective is to develop preliminary specifications and requirement for SWAT tools.

Several SWAT participants asked about the QUEWZ software. McDiarmid said that Dave Snyder in North Carolina has some information on QUEWZ and MacCarthy Braxton, Ohio DOT said he had information on QUEWZ '98 .

Reaction to SAIC presentation:

- How would you like to see the economic analysis handled? Email feedback to Hoopengardner.
- Gavino asked about use of TDM models and regional or steam to work into cracks. He said some scenarios may require transit service and steam would be the best way to compare.

- FHWA current effort trying to provide something for everyone. If we focus on urbanize area we will turn someone off. Objective to develop something that everyone can use. Ghaman said that down the road the objective is to develop something basic that can be built upon so it can be more intelligent.
- Processing of the TDM models steam, Dr. Wunderlich responded to Gavino's questions regarding static output on one stream. He said that is not in this model and they have not thought regional.
- Hoopengardner: will resend out the survey to get forced response as opposed to open-ended questions. This was suggested by Sam Sherman, Utah DOT. Hoopengardner said he will have a draft of the analysis by late November
- O'Mara said the tool may help develop cost in early planning stage. She asked, "How do you give program people estimate of cost needed for traffic management?" Ghaman said that is a tough questions because FHWA impacts will be seven or eight years down the road. They cannot re-scope projects already in pipeline. This eight to ten percent is a good rule of thumb right now for traffic management he said.
- FHWA learns to be all-inclusive to develop next generation of traffic equipment. Let's not talk about liquidated damages. The objective is to avoid confrontational attitudes between agencies and industry.
- Why is there an element to calculate user cost? In the deliberation of what to do usually user cost is not totaled in. Benefit to motorist never appear in spreadsheet. So that's why we want to make intelligent decisions. The mission is to reduce accidents and improve mobility. It support decisions said Ditzler. We believe there is a need for having quantifiable numbers to support decisions. Not to be used as a sledgehammer against contractor but as an incentives for both sides.. If it is a useful tool for liquidated damages that's fine added Ditzler. FHWA will not require that States use the tools.
- Fleming said it is a good tool and moving in the right direction. It seems as though not much would be done unless there is some direction from FHWA to encourage evaluation of cost of traffic management. We need some guidance from FHWA to require use of this if a project over 25 million.

Next Meeting

The group voted to hold the next Steering Committee Meeting in San Diego, CA on Tuesday Feb. 27 with a possible QuickZone Training on the morning of Wednesday, Feb. 28. Mitretek will poll the group to determine interest in the training.

Conclusion

Ghaman thanked participants for traveling to the meeting and encouraged e-mail correspondence during the meeting interims. The meeting was adjourned.

The Attachments are not available electronically.